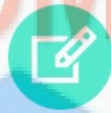
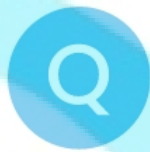


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## QUIZZES

Practice test 1 Unit 7



10 Questions



7 min

Topics  
OHM's Law

Start Quiz

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SAEEDMDCAT

06 : 57



1/10



7 min



Hint

Q : The graphical representation of Ohm's law is

A

hyperbola

B

ellipse

C

parabola

D

straight line

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 55



2/10



7 min



Hint

Q : Ohm's law explain the behavior of current under the constant



resistance



voltage



current



both a and b

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 52



3/10



7 min



Hint

Q : The graphical representation of Ohm's law is

A

straight line

B

parabola

C

hyperbola

D

ellipse

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

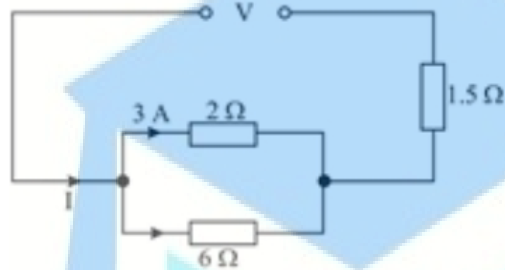


06 : 45



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Q : In the circuit shown, there is a current of 3A in the 2 ohm resistor.



What are the values of the current  $I$  delivered by, and the voltage  $V$  across the power supply?

$I / \text{A} \quad V / \text{V}$

- (A) 3    10.5
- (B) 4    9
- (C) 4    12
- (D) 12    18

3 10.5

A

4 9

B

4 12

C

D

12 18

1

2

3

4

5

6

7

06 : 33



5/10



7 min

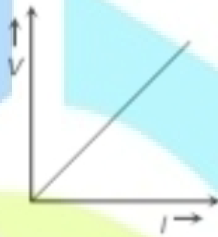


Hint

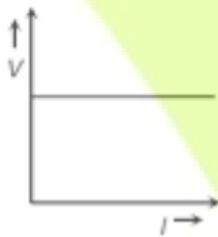
Q :

Which of the adjoining graphs represents ohmic resistance

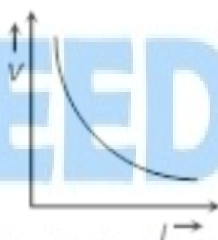
A



B



C



D



1

2

3

4

5

6

7

06 : 31



6/10



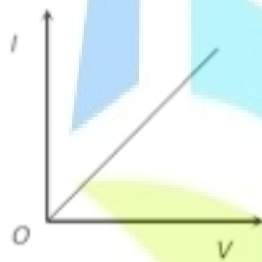
7 min



Hint

Q :

I-V characteristic of a copper wire of length  $L$  and area of cross-section  $A$  is shown in figure. The slope of the curve becomes



A

More if the experiment is performed at higher temperature

B

More if a wire of steel of same dimension is used

C

More if the length of the wire is increased

D

Less if the length of the wire is increased

1

2

3

4

5

6

7

06 : 28



7/10



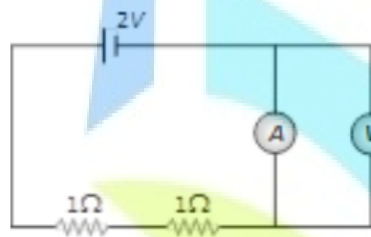
7 min



Hint

Q :

In the circuit shown, A and V are ideal ammeter and voltmeter respectively. Reading of the voltmeter will be



2 V



1 V



0.5 V



Zero



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 25



8/10



7 min



Hint

Q :

$62.5 \times 10^{18}$  electrons per second are flowing through a wire of area of cross-section  $0.1 \text{ m}^2$ , the value of current flowing will be



1 A



0.1 A



10 A



0.11 A

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4

5

6

7

8

9

10

06 : 23



9/10



7 min



Hint

Q :

The reciprocal of resistance is

A

Conductance

B

Resistivity

C

Voltage

D

conductivity

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

4

5

6

7

8

9

10

06 : 21



10/10



7 min



Hint

Q :

A coil takes 15 min to boil a certain amount of water, another coil takes 20 min for the same process. Time taken to boil the same amount of water when both coil are connected in series



5 min



8.6 min



35 min



30 min

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SAEED MDCAT TEAM



SAEEDMDCAT

4

5

6

7

8

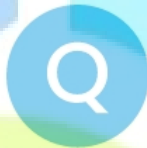
9

10



## QUIZ RESULT

Practice test 1 Unit 7



10



7 min



03-May-2021



0 sec



0/10



0.0%

SAEED MDCAT

Result Detail

SAEED MDCAT TEAM



SAEEDMDCAT







## Practice test 1 Unit 7



Correct



Unattempted



Incorrect



1/10

Q : The graphical representation of Ohm's law is



hyperbola



ellipse



parabola



straight line

Explanation

SAEED MDCAT TEAM

Book line



SAEEDMDCAT

1

2

3

4

5

6

7



## Practice test 1 Unit 7



Correct



Unattempted



Incorrect



2/10

Q : Ohm's law explain the behavior of current under the constant



resistance



voltage



current



both a and b

Explanation

SAEED MDCAT TEAM  
information



SAEEDMDCAT

1

2

3

4

5

6

7



## Practice test 1 Unit 7



Correct



Unattempted



Incorrect



3/10

Q : The graphical representation of Ohm's law is

A

straight line

B

parabola

C

hyperbola

D

ellipse

Explanation



1

2

3

4

5

6

7

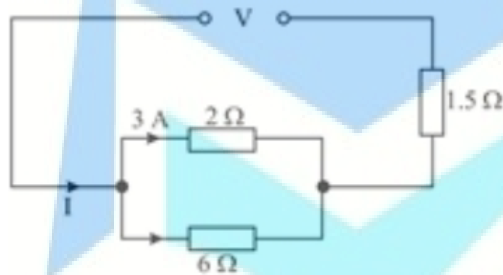


Incorrect



4/10

Q : In the circuit shown, there is a current of 3A in the 2 ohm resistor.



What are the values of the current  $I$  delivered by, and the voltage  $V$  across the power supply?

$I / A \quad V / V$

- (A) 3    10.5
- (B) 4    9
- (C) 4    12
- (D) 12    18

3 10.5

A

4 9

B

4 12

C



A

3 10.5

B

4 9

C

4 12

D

12 18

Explanation

$$V_{2\Omega}/R = 3 \times 2 = 6V$$

$$I_{6\Omega} = \frac{V}{R} = \frac{6}{6} = 1A$$

$$R_{eq} = \frac{2 \times 6}{2 + 6} = \frac{12}{8} = \frac{3}{2}$$

$$R_{eq} = 1.6^2 \Omega$$

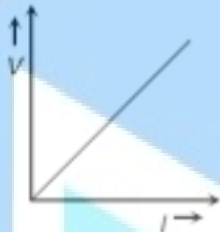
$$V_T = 6 + 6 = 12V$$



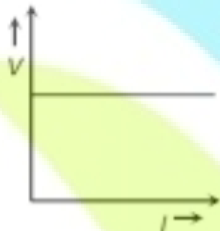
## Practice test 1 Unit 7

Which of the adjoining graphs represents ohmic resistance

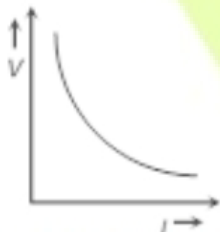
A



B



C



D



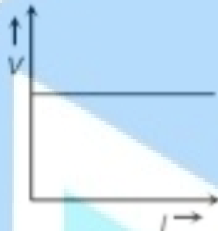
Explanation



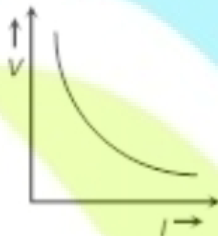
A



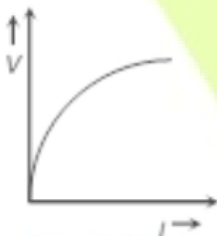
B



C



D



Explanation

For ohmic resistance  
 $V \propto I$

$V = IR$   
(here R is constant)



## Practice test 1 Unit 7



Correct



Unattempted



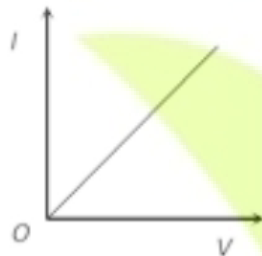
Incorrect



6/10

Q :

I-V characteristic of a copper wire of length  $L$  and area of cross-section  $A$  is shown in figure. The slope of the curve becomes



A

More if the experiment is performed at higher temperature

B

More if a wire of steel of same dimension is used

C

More if the length of the wire is increased

D

Less if the length of the wire is increased

1

2

3

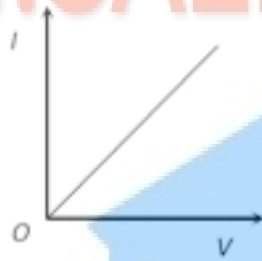
4

5

6

7





A

More if the experiment is performed at higher temperature

B

More if a wire of steel of same dimension is used

C

More if the length of the wire is increased

D

Less if the length of the wire is increased

Explanation

Slope of V-i curve

$=R(= \rho l/A)$

. But in given curve axis of i and V are interchanged. So slope of given curve

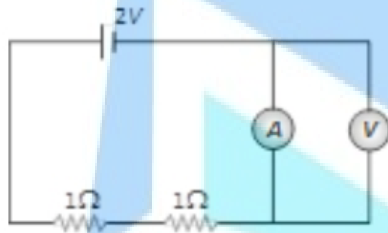
$=1/R(=A/\rho l)$

i.e. with the increase in length of the wire. Slope of the curve will decrease.



Q :

In the circuit shown, A and V are ideal ammeter and voltmeter respectively. Reading of the voltmeter will be



A

2 V

B

1 V

C

0.5 V

D

Zero

Explanation

Zero (No potential difference across voltmeter).



## Practice test 1 Unit 7



Correct



Unattempted



Incorrect



8/10

Q:

$62.5 \times 10^{18}$  electrons per second are flowing through a wire of area of cross-section  $0.1 \text{ m}^2$ , the value of current flowing will be

A

1 A

B

0.1 A

C

10 A

D

0.11 A

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

$$i = \frac{ne}{t} = \frac{62.5 \times 10^{18} \times 1.6 \times 10^{-19}}{1}$$

4

5

6

7

8

9

10



## Practice test 1 Unit 7



Correct



Unattempted



Incorrect



9/10

Q:

The reciprocal of resistance is

A

Conductance

B

Resistivity

C

Voltage

D

conductivity

Explanation

The reciprocal of resistance is called conductance

4

5

6

7

8

9

10



## Practice test 1 Unit 7



Correct



Unattempted



Incorrect



10/10

Q :

A coil takes 15 min to boil a certain amount of water, another coil takes 20 min for the same process. Time taken to boil the same amount of water when both coil are connected in series

A

5 min

B

8.6 min

C

35 min

D

30 min

Explanation



SAEEDMDCAT

Time

$$t_s = t_1 + t_2 = 35 \text{ min.}$$

4

5

6

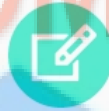
7

8

9

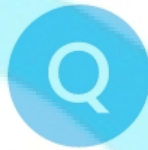
10

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## QUIZZES

Practice test 2 Unit 7



10 Questions



7 min

### Topics

Electrical resistance, Specific resistance or resistivity, Effect of temperature on resistance (Temperature coefficient of resistance or resistivity)

Start Quiz

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06 : 58



1/10



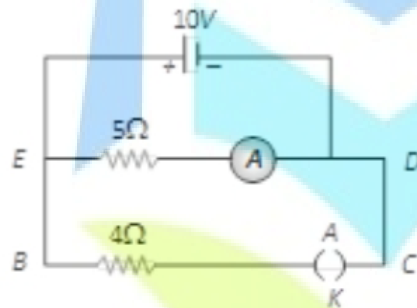
7 min



Hint

Q :

In the given figure, when key K is opened, the reading of the ammeter A will be



A

50 A

B

2 A

C

0.5 A

D

10 A



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 56



2/10



7 min



Hint

Q :

The resistivity of iron is  $1 \times 10^{-7} \text{ ohm-m}$ . The resistance of a iron wire of particular length and thickness is 1 ohm. If the length and the diameter of wire both are doubled, then the resistivity in ohm-m will be



$1 \times 10^{-7}$



$2 \times 10^{-7}$



$4 \times 10^{-7}$



$8 \times 10^{-7}$

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7



06 : 53



3/10



7 min



Hint

Q :

A certain piece of silver of given mass is to be made like a wire. Which of the following combination of length ( $L$ ) and the area of cross-sectional will lead to the smallest resistance

A

$L$  and  $A$

B

$2L$  and  $A/2$

C

$L/2$  and  $2A$

D

Any of the above, because volume of silver remains same

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 50



4/10



7 min



Hint

Q :

A nichrome wire 50 cm long and one square millimetre cross-section carries a current of 4A when connected to a 2V battery. The resistivity of nichrome wire in ohm metre is

A

$$1 \times 10^{-6}$$

B

$$4 \times 10^{-7}$$

C

$$3 \times 10^{-7}$$

D

$$2 \times 10^{-7}$$

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 48



5/10



7 min



Hint

Q :

If a wire of resistance  $R$  is melted and recasted to half of its length, then the new resistance of the wire will be



$R/4$



$R/2$



$R$



$2R$

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 45



6/10



7 min



Hint

Q :

A resistance  $R$  is stretched to four times its length. Its new resistance will be



4 R



64 R



$R/4$



16 R

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 43



7/10



7 min



Hint

Q :

Two wires that are made up of two different materials whose specific resistance are in the ratio 2 : 3, length 3 : 4 and area 4 : 5. The ratio of their resistances is



6 : 5



6 : 8



5 : 8



1 : 2

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 40



8/10



7 min



Hint

Q :

The resistance of a thin wire in comparison of a thick, wire of the same material



is low



is equal



depends upon the metal of the wire



is high

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

4

5

6

7

8

9

10

06 : 38



9/10



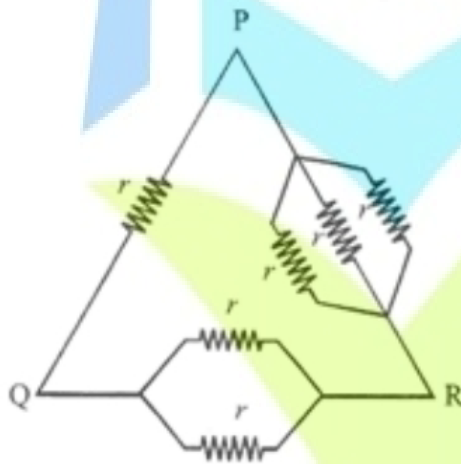
7 min



Hint

Q :

Six equal resistances are connected between points P, Q and R as shown in figure. Then net resistance will be maximum between:



A

P and R

B

P and Q

C

Q and R

D

Any two points

4

5

6

7

8

9

10

06 : 33



10/10



7 min

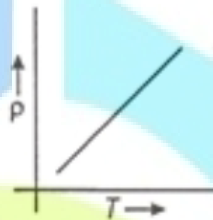


Hint

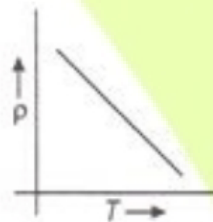
Q :

The temperature ( $T$ ) dependence of resistivity ( $\rho$ ) of a semiconductor is represented by

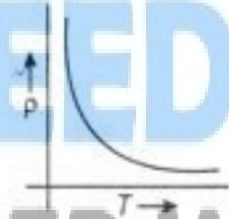
A



B



C



D



4

5

6

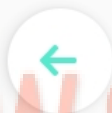
7

8

9

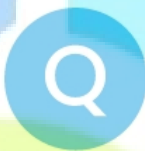
10





## QUIZ RESULT

Practice test 2 Unit 7



10



7 min



03-May-2021



0 sec



0/10



0.0%

SAEED MDCAT

Result Detail

SAEED MDCAT TEAM



SAEEDMDCAT

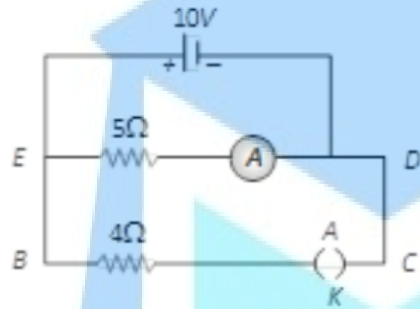




## Practice test 2 Unit 7

Q:

In the given figure, when key K is opened, the reading of the ammeter A will be



A

50 A

B

2 A

C

0.5 A

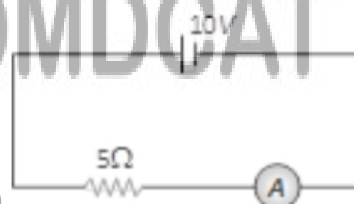
D

10 A

Explanation



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The circuit will be as shown  
 $I = 10/5 = 2A$



## Practice test 2 Unit 7



Correct



Unattempted



Incorrect



2/10

Q:

The resistivity of iron is  $1 \times 10^{-7}$  ohm-m. The resistance of a iron wire of particular length and thickness is 1 ohm. If the length and the diameter of wire both are doubled, then the resistivity in ohm-m will be



$1 \times 10^{-7}$



$2 \times 10^{-7}$



$4 \times 10^{-7}$



$8 \times 10^{-7}$

SAEED MDCAT

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

Resistivity of some material is its intrinsic property and is constant at particular temperature. Resistivity does not depend upon shape.

1

2

3

4

5

6

7



## Practice test 2 Unit 7



Correct



Unattempted



Incorrect



3/10

Q :

A certain piece of silver of given mass is to be made like a wire. Which of the following combination of length (L) and the area of cross-sectional will lead to the smallest resistance

A

L and A

B

2L and A/2

C

L/2 and 2 A

D

Any of the above, because volume of silver remains same

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

$$R = \rho l / A$$

1

2

3

4

5

6

7



## Practice test 2 Unit 7



Correct



Unattempted



Incorrect



4/10

Q:

A nichrome wire 50 cm long and one square millimetre cross-section carries a current of 4A when connected to a 2V battery. The resistivity of nichrome wire in ohm metre is



A  $1 \times 10^{-6}$



B  $4 \times 10^{-7}$



C  $3 \times 10^{-7}$



D  $2 \times 10^{-7}$

Explanation



SAEEDMDCAT

$$R = \frac{V}{i} = \rho \frac{l}{A} \Rightarrow \frac{2}{4} = \rho \frac{50 \times 10^{-2}}{(1 \times 10^{-3})^2}$$



## Practice test 2 Unit 7



Correct



Unattempted



Incorrect



5/10

Q :

If a wire of resistance  $R$  is melted and recasted to half of its length, then the new resistance of the wire will be

A

$R/4$

B

$R/2$

C

$R$

D

$2R$

Explanation



SAEEDMDCAT

$$R \propto l^2 \Rightarrow \frac{R_1}{R_2} = \left( \frac{l_1}{l_2} \right)^2 \Rightarrow \frac{R}{R_2} = \left( \frac{l}{l/2} \right)^2 \Rightarrow \frac{R}{R_2} = 4 \Rightarrow R_2 = \frac{R}{4}$$

1

2

3

4

5

6

7



## Practice test 2 Unit 7



Correct



Unattempted



Incorrect



6/10

Q:

A resistance  $R$  is stretched to four times its length. Its new resistance will be

A

4 R

B

64 R

C

$R/4$

D

16 R

Explanation

$$R' = n^2 R \Rightarrow R' = 16R$$

1

2

3

4

5

6

7



## Practice test 2 Unit 7



Correct



Unattempted



Incorrect



7/10

Q:

Two wires that are made up of two different materials whose specific resistance are in the ratio 2 : 3, length 3 : 4 and area 4 : 5. The ratio of their resistances is

A

6 : 5

B

6 : 8

C

5 : 8

D

1 : 2

Explanation



Resistance =  $\rho \frac{l}{A}$

$$\frac{R_1}{R_2} = \frac{\rho_1}{\rho_2} \times \frac{l_1}{l_2} \times \frac{A_2}{A_1} = \frac{2}{3} \times \frac{3}{4} \times \frac{5}{4}$$

1

2

3

4

5

6

7





## Practice test 2 Unit 7



Correct



Unattempted



Incorrect



8/10

Q :

The resistance of a thin wire in comparison of a thick, wire of the same material

A

is low

B

is equal

C

depends upon the metal of the wire

D

is high

4

5

6

7

8

9

10



## Practice test 2 Unit 7



Correct



Unattempted



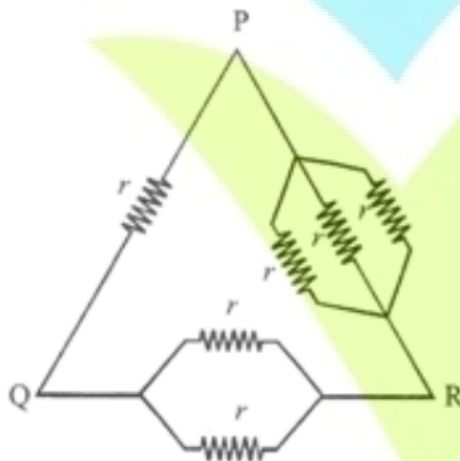
Incorrect



9/10

Q :

Six equal resistances are connected between points P, Q and R as shown in figure. Then net resistance will be maximum between:



A

P and R

B

P and Q

C

Q and R

D

Any two points



## Practice test 2 Unit 7



A

P and R

B

P and Q

C

Q and R

D

Any two points

Explanation

[b] Resistance between P and Q  $r_{PQ} = 1$ 

$$r_{OR} = \frac{r}{2} \parallel \left( r + \frac{r}{3} \right) = \frac{\frac{r}{2} \times \frac{4}{3}r}{\frac{r}{2} + \frac{4}{3}r} = \frac{2}{5}r$$

$$r_{PR} = \frac{r}{3} \parallel \left( \frac{r}{2} + r \right) = \frac{\frac{r}{3} \times \frac{3}{2}r}{\frac{r}{3} + \frac{3}{2}r} = \frac{1}{5}r$$



## Practice test 2 Unit 7



Correct



Unattempted



Incorrect

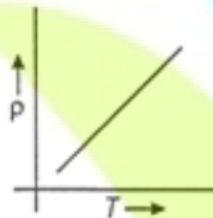


10/10

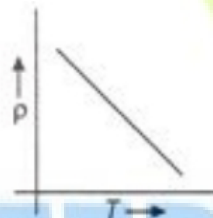
Q:

The temperature ( $T$ ) dependence of resistivity ( $\rho$ ) of a semiconductor is represented by

A



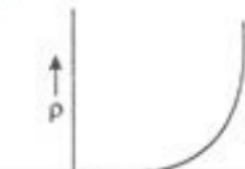
B



C



D



4

5

6

7

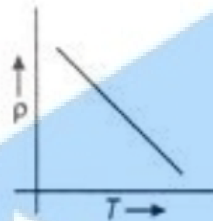
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9

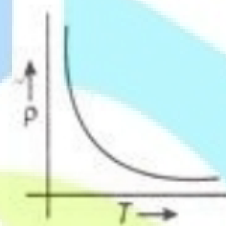
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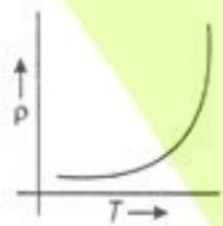
B



C



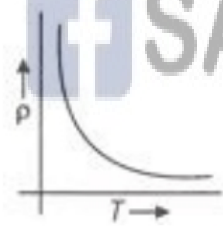
D



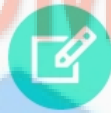
Explanation

SAEED MDCAT TEAM

The temperature coefficient of resistance of semiconductors is negative that is their electrical resistance decreases with rise in temperature.

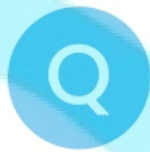


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## QUIZZES

Practice test 3 Unit 7



10 Questions



7 min

Topics

Electric power (Unit of electric power)

Start Quiz

SAEED MDCAT

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06 : 58



1/10



7 min



Hint

Q : A battery is used to light a 24 W electric lamp. The battery provides a charge of 120 C in 60 s.



What is the potential difference across the bulb?

A

5 V

B

12 V

C

24 V

D

120 V

SAEED MDCAT

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SAEEDMDCAT

1

2

3

4

5

6

7

06 : 56



2/10



7 min



Hint

Q : The powers of two electric bulbs are 100 W and 200 W. Which are connected to power supply of 220 V. The ratio of resistance of their filament will be



1:2



2:1



1:3



4:3

**SAEED MDCAT**

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7



06 : 54



3/10



7 min



Hint

Q : Two electric bulbs have tungsten filament of same length. If one of them gives 60 watt and other 100 watt, then

A

100 watt bulb has thicker filament

B

60 watt bulb has thicker filament

C

Both filaments are of same thickness

D

It is not possible to get different wattages unless the lengths are different

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 52



4/10

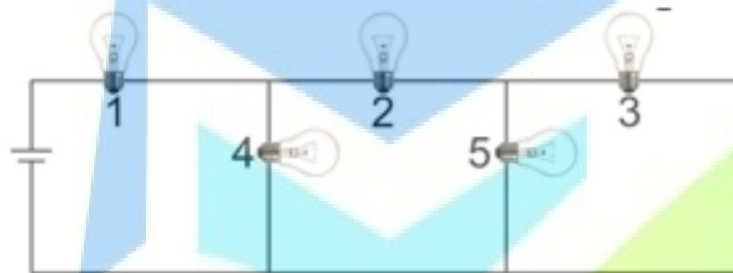


7 min



Hint

Q : In fig. a fuse in one of the bulbs causes all the other to go out. Which bulb has fused?



A

1

B

2

C

3

D

4 or 5

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 48



5/10



7 min



Hint

Q : In a large building, there are fifteen bulbs of 40 W, five bulbs of 100 W, five fans of 80 W and one heater of 1 kW. The voltage of the electric mains is 220 V. The minimum capacity of the main fuse of the building will be



8 A



10 A



12 A



14 A

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 46



6/10

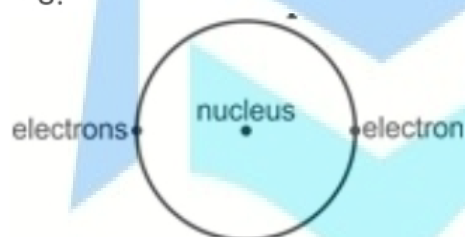


7 min



Hint

Q : The diagram shows a model of an atom in which two electrons move around a nucleus in a circular orbit. The electrons complete one full orbit in  $1.0 \times 10^{-15}$  s.



Which is the current caused by the motion of the electrons in the orbit?

A

 $1.6 \times 10^{-34}$  A

B

 $3.2 \times 10^{-34}$  A

C

 $1.6 \times 10^{-4}$  A

D

 $3.2 \times 10^{-4}$  A

SAEEDMDCAT

1

2

3

4

5

6

7

06 : 43



7/10



7 min



Hint

Q : Electrical power is expressed as

A

$$V \frac{\Delta Q}{\Delta t}$$

B

$$\frac{t}{W}$$

C

$$\frac{V}{t}$$

D

$$\frac{\Delta Q}{V \Delta t}$$

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 41



8/10

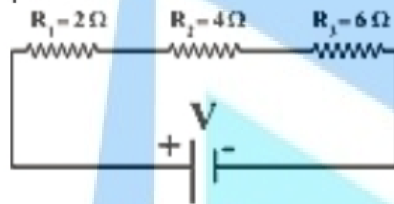


7 min



Hint

Q : A circuit diagram is shown in which we have three resistances. Among three which develops maximum power?



A

 $R_1$ 

B

 $R_2$ 

C

 $R_3$ 

D

in series power remains same

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

4

5

6

7

8

9

10

06 : 39



9/10

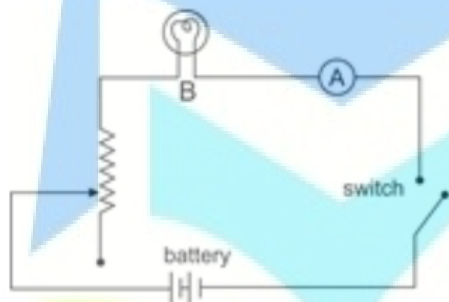


7 min



Hint

Q : In the circuit below, bulb B does not light although ammeter A indicates that the current is flowing. Why does the bulb not light?



A

The bulb is fused

B

There is a break in the circuit between bulb and ammeter

C

The variable resistor has too large

D

There is a break in the circuit between the bulb and variable resistor

SAEED MDCAT TEAM



SAEEDMDCAT

4

5

6

7

8

9

10

06 : 37



10/10



7 min



Hint

Q :

From a power station, the power is transmitted at a very high voltage because -

A

it is generated only at high voltage

B

it is cheaper to produce electricity at high voltage

C

electricity at high voltage is less dangerous

D

there is less loss of energy in transmission at high voltage

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

4

5

6

7

8

9

10





## QUIZ RESULT

Practice test 3 Unit 7



10



7 min



03-May-2021



0 sec



0/10



0.0%

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Result Detail

SAEED MDCAT TEAM



SAEEDMDCAT





Incorrect



1/10

Q : A battery is used to light a 24 W electric lamp. The battery provides a charge of 120 C in 60 s.



What is the potential difference across the bulb?

A

5 V

B

12 V

C

24 V

D

120 V

Explanation

$$I = \frac{120}{60} = 2A$$

$$P = IV \rightarrow V = \frac{P}{I} = \frac{24}{2} = 12V$$



### Practice test 3 Unit 7

Correct

Unattempted



Incorrect



2/10

Q : The powers of two electric bulbs are 100 W and 200 W. Which are connected to power supply of 220 V. The ratio of resistance of their filament will be

A

1:2

B

2:1

C

1:3

D

4:3

Explanation

$$P = \frac{V^2}{R}$$

$$\frac{P_1}{P_2} = \frac{R_2}{R_1} (\because V = \text{constant})$$

$$\frac{100}{200} = \frac{R_2}{R_1} \Rightarrow \frac{R_1}{R_2} = \frac{2}{1}$$

1

2

3

4

5

6

7



### Practice test 3 Unit 7



Correct



Unattempted



Incorrect



3/10

Q : Two electric bulbs have tungsten filament of same length. If one of them gives 60 watt and other 100 watt, then

A

100 watt bulb has thicker filament

B

60 watt bulb has thicker filament

C

Both filaments are of same thickness

D

It is not possible to get different wattages unless the lengths are different

Explanation

$$P = \frac{V^2}{R}$$

If P is more, R is less then less R, 'a' is more. So, 100 W bulb has thicker element

$$R = \rho \frac{l}{a}$$



## Practice test 3 Unit 7



Correct



Unattempted

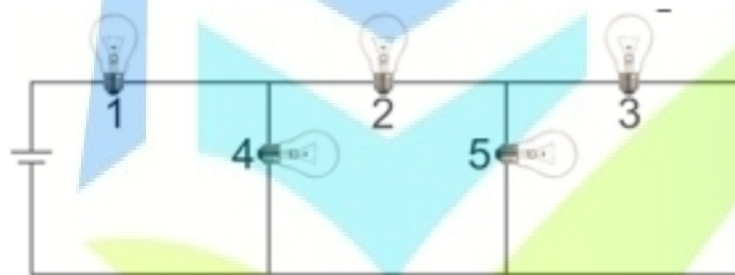


Incorrect



4/10

Q : In fig. a fuse in one of the bulbs causes all the other to go out. Which bulb has fused?



A

1

B

2

C

3

D

4 or 5



Explanation

SAEEDMDCAT

A simple examination of the circuit leads us to the right choice

1

2

3

4

5

6

7



Incorrect



5/10

Q : In a large building, there are fifteen bulbs of 40 W, five bulbs of 100 W, five fans of 80 W and one heater of 1 kW. The voltage of the electric mains is 220 V. The minimum capacity of the main fuse of the building will be

A

8 A

B

10 A

C

12 A

D

14 A

Explanation

Total power (P)

$$= 15 \times 40 + 5 \times 100 + 5 \times 80 + 1000 = 2500 \text{ W}$$

Main supply voltage = 220 V

$$\Rightarrow \text{current} = \frac{2500}{220} = 11.3 \text{ A}$$

$$\Rightarrow \text{minimum capacity} = 12 \text{ A}$$



Q : The diagram shows a model of an atom in which two electrons move around a nucleus in a circular orbit. The electrons complete one full orbit in  $1.0 \times 10^{-15}$  s.



Which is the current caused by the motion of the electrons in the orbit?

A  $1.6 \times 10^{-34}$  A

B  $3.2 \times 10^{-34}$  A

C  $1.6 \times 10^{-4}$  A

D  $3.2 \times 10^{-4}$  A

Explanation

Using the formula  $Q = It$

$$I = \frac{2 \times 1.60 \times 10^{-19}}{1.0 \times 10^{-15}} = 3.2 \times 10^{-4} \text{ A}$$



Practice test 3 Unit 7



Correct



Unattempted



Incorrect



7/10

Q : Electrical power is expressed as



$$V \frac{\Delta Q}{\Delta t}$$



$$\frac{t}{W}$$



$$\frac{V}{t}$$



$$\frac{\Delta Q}{V \Delta t}$$

Explanation

$$P = \frac{\Delta W}{\Delta t} = \frac{\Delta Q V}{\Delta t}$$





## Practice test 3 Unit 7



Correct



Unattempted

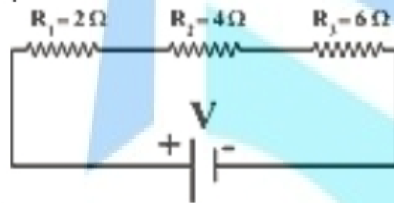


Incorrect



8/10

Q : A circuit diagram is shown in which we have three resistances. Among three which develops maximum power?



A

$R_1$

B

$R_2$

C

$R_3$

D

in series power remains same

Explanation



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$$P = I^2 R$$

In series  $I = \text{same}$

$$P \propto R$$



## Practice test 3 Unit 7



Correct



Unattempted

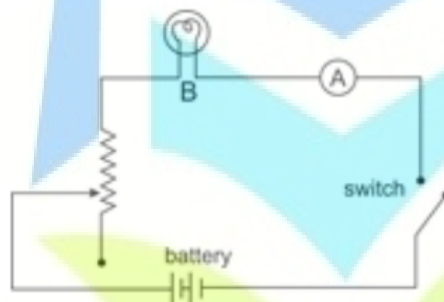


Incorrect



9/10

Q : In the circuit below, bulb B does not light although ammeter A indicates that the current is flowing. Why does the bulb not light?



A

The bulb is fused

B

There is a break in the circuit between bulb and ammeter

C

The variable resistor has too large

D

There is a break in the circuit between the bulb and variable resistor



Explanation

It is a case of weak current

4

5

6

7

8

9

10



## Practice test 3 Unit 7



Correct



Unattempted



Incorrect



10/10

Q :

From a power station, the power is transmitted at a very high voltage because -

A

it is generated only at high voltage

B

it is cheaper to produce electricity at high voltage

C

electricity at high voltage is less dangerous

D

there is less loss of energy in transmission at high voltage

4

5

6

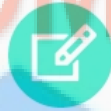
7

8

9

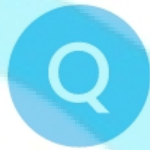
10

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## QUIZZES

Practice test 4 Unit 7



10 Questions



7 min

### Topics

Kirchhoff's Rule (Kirchhoff's current law, Kirchhoff's voltage law), Potentiometer

Start Quiz

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06 : 59



1/10



7 min



Hint

Q : KCL is according to law of conservation of



mass



charge



energy



none of these

**SAEED MDCAT**

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 56



2/10



7 min



Hint

Q : If a resistor is traversed in the direction of current the change in potential is

A

positive

B

zero

C

negative

D

constant

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 53



3/10



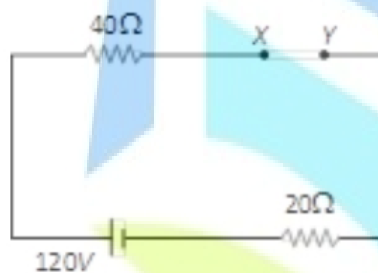
7 min



Hint

Q :

In the circuit shown, potential difference between X and Y will be



A

Zero

B

20 V

C

60 V

D

120 V



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 51



4/10



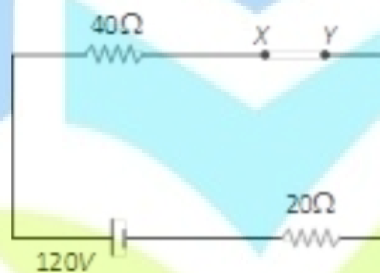
7 min



Hint

Q :

Potential difference across the  $40\Omega$  resistance in given figure will be



A

Zero

B

80 V

C

40 V

D

120 V

1

2

3

4

5

6

7



06 : 49



5/10



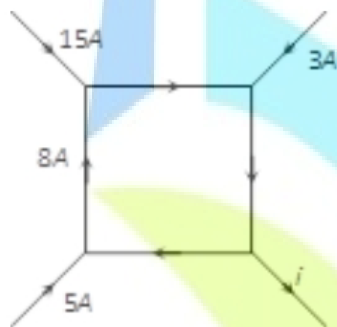
7 min



Hint

Q :

The figure shows a network of currents. The magnitude of currents is shown here. The current  $i$  will be



A

3 A

B

13 A

C

23 A

D

-3 A

1

2

3

4

5

6

7

06 : 46



6/10



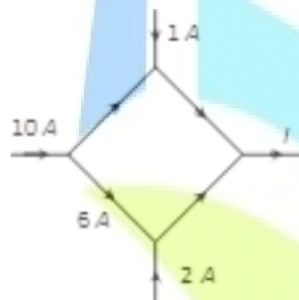
7 min



Hint

Q :

The figure shows a network of currents. The magnitude of currents is shown here. The current  $I$  will be



A

3 A

B

9 A

C

13 A

D

19 A



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 43



7/10



7 min



Hint

Q :

Sensitivity of potentiometer can be increased by

A

Increasing the e.m.f. of the cell

B

Increasing the length of the potentiometer wire

C

Decreasing the length of the potentiometer wire

D

None of the above

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SAEED MDCAT TEAM



SAEEDMDCAT

1

2

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4

5

6

7

06 : 40



8/10

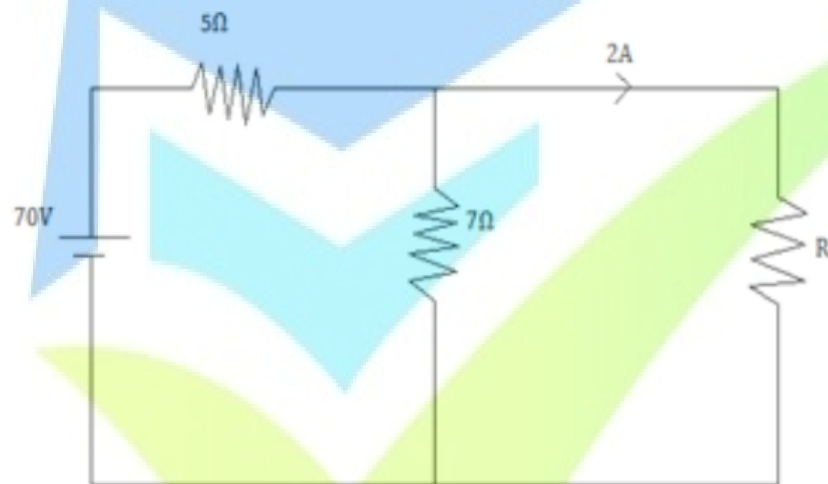


7 min



Hint

Q : Find R in the given circuit using KVL



A

$17.5\Omega$

B

$17.2\Omega$

C

$17.4\Omega$

D

$17.8\Omega$

4

5

6

7

8

9

10

06 : 37



9/10



7 min



Hint

Q :

A potentiometer consists of a wire of length 4 m and resistance  $10\Omega$ . It is connected to a cell of e.m.f. 2 V. The potential difference per unit length of the wire will be

A

0.5 V/m

B

2 V/m

C

5V/m

D

10V/m

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SAEED MDCAT TEAM



SAEEDMDCAT

4

5

6

7

8

9

10

06 : 35



10/10



7 min



Hint

Q :

The material of wire of potentiometer is

A

Copper

B

Steel

C

Manganin

D

Aluminium

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

4

5

6

7

8

9

10



## QUIZ RESULT

Practice test 4 Unit 7



10



7 min



03-May-2021



0 sec



0/10



0.0%

SAEED MDCAT

Result Detail

SAEED MDCAT TEAM



SAEEDMDCAT





## Practice test 4 Unit 7



Correct



Unattempted



Incorrect



1/10

Q : KCL is according to law of conservation of

A

mass

B

charge

C

energy

D

none of these

Explanation

basic information



SAEEDMDCAT

1

2

3

4

5

6

7





## Practice test 4 Unit 7



Correct



Unattempted



Incorrect



2/10

Q : If a resistor is traversed in the direction of current the change in potential is

A

positive

B

zero

C

negative

D

constant

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

2

3

4

5

6

7



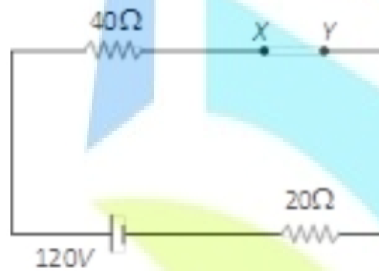
Incorrect



3/10

Q :

In the circuit shown, potential difference between X and Y will be



A

Zero

B

20 V

C

60 V

D

120 V



Explanation

SAEEDMDCAT

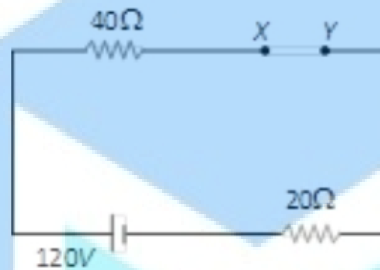
In open circuit of a cell  $V = E$



## Practice test 4 Unit 7

Q:

Potential difference across the  $40\Omega$  resistance in given figure will be



A

Zero

B

80 V

C

40 V

D

120 V

Explanation



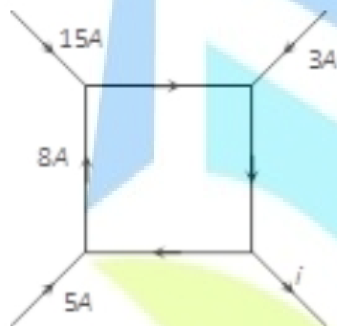
SAEEDMDCAT

Zero (Circuit open means no current and hence no potential difference across resistance).



Q :

The figure shows a network of currents. The magnitude of currents is shown here. The current  $i$  will be



A

3 A

B

13 A

C

23 A

D

-3 A



SAEEDMDCAT

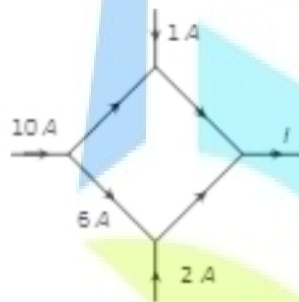
Explanation

By Kirchhoff's current law.



Q :

The figure shows a network of currents. The magnitude of currents is shown here. The current  $I$  will be



A

3 A

B

9 A

C

13 A

D

19 A



Explanation

SAEEDMDCAT

On applying Kirchhoff's current law  $i = 13$  A.



Correct



Unattempted



Incorrect



7/10

Q:

Sensitivity of potentiometer can be increased by

A

Increasing the e.m.f. of the cell

B

Increasing the length of the potentiometer wire

C

Decreasing the length of the potentiometer wire

D

None of the above

Explanation

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The sensitivity of potentiometer can be increased by decreasing the potential gradient i.e. by increasing the length of potentiometer wire.

(Sensitivity  $\propto$   
 $1/P.G. \propto$  Length)



# Practice test 4 Unit 7

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Correct



Unattempted

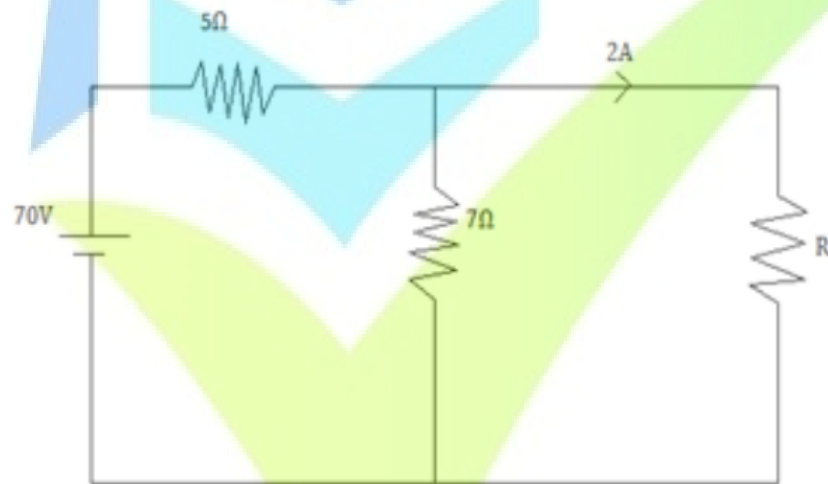


Incorrect



8/10

Q : Find R in the given circuit using KVL



A

17.5  $\Omega$

B

17.2  $\Omega$

C

17.4  $\Omega$

D

17.8  $\Omega$

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4

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A

17.5  $\Omega$

B

17.2  $\Omega$

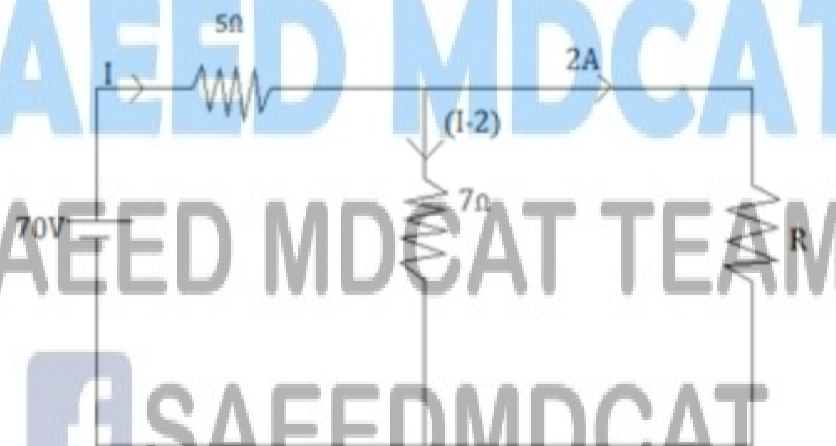
C

17.4  $\Omega$

D

17.8  $\Omega$

Explanation



$$\text{KVL: } 70 - 5I - 7(I - 2) = 0$$

$$I = 7\text{A}$$

$$\text{KVL to 2nd loop: } 7(I - 2) - 2R = 0$$

$$R = 17.5\Omega$$





Q :

A potentiometer consists of a wire of length 4 m and resistance  $10\Omega$ . It is connected to a cell of e.m.f. 2 V. The potential difference per unit length of the wire will be

A

0.5 V/m

B

2 V/m

C

5V/m

D

10V/m

Explanation

SAEED MDCAT TEAM

Since potential difference for full length of wire = 2 V

- P.D. per unit length of wire  
 $= 2/4 = 0.5\text{V/m}$



## Practice test 4 Unit 7



Correct



Unattempted



Incorrect



10/10

Q :

The material of wire of potentiometer is

A

Copper

B

Steel

C

Manganin

D

Aluminium

Explanation

Manganin or constantan are used for making the potentiometer wire.

4

5

6

7

8

9

10